

## REMARKS

In the outstanding Office Action dated October 5, 2005, claims 1-33 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,233,075 to Chang et al ("Chang"). In general, the application relates to methods, computer readable media, systems, and apparatus for carrying out quantum cryptography with untrusted switches. Chang, on the other hand, teaches away from using quantum cryptography (column 3, lines 51-62) in favor of "[n]ew forms of Optical Layer Survivability and Security (OLSAS)" which combine "frequency hopping and frequency division multiple access (FDMA), CDMA, and SDMA" (column 4, lines 19-22).

With specific reference to the claims, independent claims 1 and 17 recite "measuring a quantum state of said light pulses using a second set of randomly selected quantum bases." Chang fails to describe such subject matter. The Action asserts that column 12, lines 43-67 of Chang describes measuring a quantum state of the light pulses using a second set of randomly selected bases, as recited in independent claims 1 and 17. Applicants disagree. This passage states:

Label-switched routing look-up tables are included in network elements 421-425 in order to rapidly route the optical packet through the network element whenever a flow switching state is not set-up. The connection set-up request conveyed by optical signaling header 510 is rapidly compared against the label-switch routing look-up table within each network element. In some cases, the optimal connections for the most efficient signal routing may already be occupied. The possible connection look up table is also configured to already provide an alternate wavelength assignment or an alternate path to route the signal. Providing at least one alternative wavelength significantly reduces the blocking probability. The alternative wavelength routing also achieves the same propagation delay and number of hops as the optimal case, and eliminates the difficulties in sequencing multiple packets. The alternate path routing can potentially increase the delay and the number of hops, and the signal-to noise-ratio of the packets are optically monitored to eliminate any possibility of packets being routed through a large number of hops. In the case where a second path or wavelength is not available, contention at an outbound link can be settled on a first-come, first-serve basis or on a priority basis. The information is presented to a regular IP router and then is reviewed by higher layer protocols, using retransmission when necessary.

This passage describes label-switched routing look-up tables and asserted advantages of assigning alternative wavelengths or paths to optical communications when the messages are being routed. The passage makes no mention of quantum states or measuring such states using a

second set of randomly selected quantum bases. Yet, this is the explicit subject matter of claims 1 and 17.

Thus, Chang fails to describe at least this one element of independent claims 1 and 17, Applicant requests reconsideration and withdrawal of the §102 rejection of these claims. Claims 2–16 and claim 18 depend from claim 1 and 17, respectively, and add further limitations, thereto. Applicant therefore requests reconsideration and withdrawal of the §102 rejections of these claims, too.

The Action asserts that the same passage (i.e., column 12, lines 43–67) describes a light measuring apparatus configured to observe the quantum-cryptographic light pulses, subject matter recited in independent claims 19 and 33. However, as mentioned above, this passage makes no reference, whatsoever, to quantum cryptographic light pulses. Thus, Chang fails to describe all of the subject matter of independent claims 19 and 33. Applicant therefore requests reconsideration and withdrawal of the § 102 rejections of these claims. Claims 20–32 depend from claim 19 and add further limitations, thereto. Applicant therefore requests reconsideration and withdrawal of the § 102 rejection of these claims, too.

In view of the above remarks, Applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response other than as reflected on the attached Fee Transmittal. However, if a fee is due, please charge our Deposit Account No. 18-1945, under Order No. BBNT-P01-134 from which the undersigned is authorized to draw.

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Respectfully submitted,

By   
Edward A. Gordon

Registration No.: 54,130  
ROPES & GRAY LLP  
One International Place  
Boston, Massachusetts 02110-2624  
(617) 951-7000  
(617) 951-7050 (Fax)  
Attorneys/Agents For Applicant